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SHALL WE REFORM THE CALENDAR ?

BY W. W. CAMPBELL

In these post-war days when so many reformers, especially in America, are firmly resolved that the world shall be made a great deal better, all at once and without regard to the financial expense involved, patient men and women may not be in the temper to consider still another reform. However, the positive assurance that the subject in question does not touch the pocket-book—does not involve yet one more financial “drive”—may incline the reader to a deliberative state of mind. This reform concerns the *Calendar*. It is under discussion in many quarters, especially in France. The motive is exclusively the greater convenience of the general public which uses the calendar—identically the same motive which led to the adoption of the “Standard Time” system.

A brief history of the calendar will assist in making the problem clear.

The calendars up to the days of Julius Caesar were many, inconvenient and crude, because churches and states made ill-advised changes in the prevailing systems. These changes, for the most part, have been deciphered and recorded by historians, yet none but expert chronologists can interpret ancient time records of passing events in terms of the modern calendar. The foundations of the present system were laid by Julius Caesar, who called the astronomer Sosigenes from Alexandria to advise him. Julius ordained that the year should begin with January 1st (B. C. 46)—in the previous Roman system the year had begun in March; that there should be twelve months, the first, third, fifth, seventh, ninth and eleventh months to contain thirty-one days each; the fourth, sixth, eighth, tenth, and twelfth, thirty days each; and the second month, February, twenty-nine days in ordinary years and thirty days in each fourth or leap year. It is well known that he changed the name of the seventh month from Quintilis to July, in honor of himself.

The Julian Calendar would have worked fairly well for a few centuries. Now came Augustus Caesar, the successor of Julius, who must have a month of his own, with as many days therein as July contains. The eighth month (Sextilis) was accordingly changed to August, and one day was stolen from the already short month of February to make thirty-one days in his month. To

prevent three successive months, July, August and September, from having thirty-one days each, the simple system of Julius as to thirty-one days in the odd months and thirty days in the even was changed by Augustus into the hodge-podge with which we struggle today.

The exact length of the year expressed in days, hours, minutes, and seconds was not known in the time of the Caesars. They had assumed it to be 365 days, 6 hours exactly, whereas it is 365 days, 5 hours, 48 minutes, 46 seconds approximately—and in fact the length of the year changes slowly. This discrepancy of more than eleven minutes caused the seasons to move forward slowly in the year. For example: at the time of the Council of Nice, 325 A. D., the Sun was in the vernal equinox, that is, it crossed from the south side to the north side of the equator on March 21st; whereas in the year 1582 this crossing had moved forward ten days to March 11th. By the latter date the length of the year had become known with considerable exactness, and Pope Gregory XIII, after consultation with the wise men of his day, especially the astronomer Clavius, decided to alter the calendar to make it keep step with the Sun. Thus, he decreed that the years which complete the centuries—1600, 1700, 1800, 1900, etc.,—should not be leap years unless divisible by 400; 1600, 2000, 2400, etc., are leap years, but 1700, 1800, 1900, 2100, etc., are not. This dropping of three leap years out of every 400 years allowed almost precisely, but not quite, for the discrepancy of eleven minutes, fourteen seconds, between the true and the assumed lengths of the year. Further to set matters right, according to his point of view, he decreed that ten days in the month of October, 1582, should be dropped; to be exact, that the day following October 4th should be called October 15th. This dropping of the ten days brought the date of the vernal equinox back to March 21st, where it had been in A. D. 325. The decrees of Gregory were promptly put into practice in the Roman Catholic world, but not so in the nations of the Protestants. It was not until 1700 that the Gregorian calendar began to rule in the Protestant states of Germany, and the change to the new calendar did not take effect in England until the year 1752.

The Greek Church refused to accept the Gregorian decree, and continued the Julian calendar in force. In Russia and some of the Balkan states holding the Greek Catholic faith, the years 1700, 1800, 1900, were leap years, and consequently the Russian calendar

at the outbreak of the Great War was thirteen days behind the calendar prevailing in Roman Catholic and Protestant countries. It is understood that parts and possibly all of Russia, as well as the belated Balkan states, have now adopted the Gregorian calendar.

What is there to reform in the prevailing (Gregorian) calendar? It has several inconveniences, of which the most serious is the gross inequality in the lengths of the months. There is no simple rule expressing the length of the month; everyone must learn it as a purely arbitrary thing. Hundreds of millions of people must consider a score of times each year whether certain months have twenty-eight, twenty-nine, thirty, or thirty-one days. The abnormal shortness of February is especially inconvenient. There is reason for surprise on this account alone, that the system was not rescued long ago from the jumble of months which we owe chiefly to the vanity of Augustus Caesar. Again, the first day of the year, the first day of the month, a holiday, or any day of the year or month may fall in various years on any day of the week; and that is a greater inconvenience than we realize. It is a minor inconvenience of our calendar that always one month per year begins on Sunday; in many years there are two months and in some years three months beginning on Sunday.

How shall the faults of the Gregorian calendar be eliminated without introducing others equally serious? The subject is not an easy one. This arises from the immutable facts that there are not exactly a whole number of days in the year; that the centuries must be of two different lengths; that the years must be of two different lengths; that it is not possible to divide either the common or the leap year into an acceptable number of months equal in length; and that there is not an exact number of weeks in the month.

It has been seriously proposed by many reformers that there should be thirteen months in the year instead of twelve, because this division of the year would permit, conditionally, of a simple relationship between the week and the month. If there were thirteen months of twenty-eight days each—precisely four weeks each—364 days per annum would be accounted for. The proposers of this system suggest that the 365th day of the ordinary year be “New Year’s Day,” an extra day, not to be called by any day of the week, but to be known simply and solely as New Year’s Day. The 366th day of leap year in this system would likewise be an

extra day and be given a distinctive name, with no week-day name attaching to it, and it would fall either between the sixth and seventh months of the year, or at the close of December. This system has the advantage that all the months of the year would be of the same length, that all the months would begin on the same day of the week, and that any given day in each and every month, the seventeenth for example, would always fall on the same day of the week; but there is a fatal objection: the increase in the number of months in the year from twelve to thirteen would mean more work for banks and all sorts of accounting institutions and individuals. It is also certain that an unfortunate superstition which dwells with many weak-minded people would cause them to shy at the number "thirteen" as applied to a month.

From the many and varied proposals which retain the year of twelve months, but principally from M. Armelin's calendar—these proposals discussed chiefly under the auspices of the *Société Astronomique de France* in 1887, and recently in the *Paris Académie des Sciences*—I have selected the features which seem best to me, as in the following paragraphs.

1. The year of twelve months is divided into four quarters of three months each, and the arrangements for the first quarter repeat themselves precisely in each of the other quarters. The first month of each quarter has thirty days, the second month thirty days, and the third month thirty-one days. This accounts for ninety-one days in each quarter, or 364 days in all.

2. The remaining day in ordinary years is "New Year's Day." It is given no other descriptive title. It does not belong to any week or any month. It begins the year. January 1st is the day following New Year's Day.

3. The 366th day of leap year is likewise an extra day, bearing an appropriate descriptive name, perhaps "Leap Day," but no week-day name, nor is it a part of any month. It is the day following December 31st, and the day preceding New Year's Day. It is assumed to be a holiday—it comes only one year in four. It could follow June 31st, if preferred.

4. January 1st falls on Monday. From this it results that the first month in each quarter—January, April, July, October—begins on Monday in each and every year; that the second month in each quarter—February, May, August, November—begins always on Wednesday; and that the third month in each quarter—March,

June, September, December—begins always on Friday. The first day of the month never falls on Sunday; the fifteenth day of the month never falls on Sunday; the thirtieth day of the month never falls on Sunday; the last day of each quarter—the thirty-first of March, June, September, December—always falls on Sunday. The thirty-day months always have four Sundays each; and the thirty-one-day months always have five Sundays each. The number of “week-days” in the month is twenty-six for each and all of the twelve months.

The advantages of this simple system must be evident. The months are as nearly equal as they can be made, and in working days they are absolutely equal. Any given day of any month always falls on the same day of the week. A mind of modest ability will learn in a few minutes the week-day with which each month invariably begins, and will be able to compute quickly the day of the week upon which any day of any month falls. Each stated holiday falls upon its invariable day of the week. Thanksgiving Day falls always on November 30th.

The present proposal is completely outlined in the following brief table, which will serve for *all years alike*. It is a perpetual calendar; it needs to be printed but once. [To be exact, the 97 leap years in 400 years do not keep the seasons *precisely* in harmony with the years. It will be necessary to omit one additional leap day every 3,323 years. Starting with A. D. 325 as correct, the leap day should be dropped about the year A. D. 3648. Our successors will probably decree that either 3600 or 4000 shall be a common year.]

New Year's Day
First Quarter
Second Quarter
Third Quarter
Fourth Quarter
Leap Day

January
April
July
October

February
May
August
November

March
June
September
December

Monday.....	1	8	15	22	29		6	13	20	27		4	11	18	25
Tuesday.....	2	9	16	23	30		7	14	21	28		5	12	19	26
Wednesday.....	3	10	17	24		1	8	15	22	29		6	13	20	27
Thursday.....	4	11	18	25		2	9	16	23	30		7	14	21	28
Friday.....	5	12	19	26		3	10	17	24		1	8	15	22	29
Saturday.....	6	13	20	27		4	11	18	25		2	9	16	23	30
Sunday.....	7	14	21	28		5	12	19	26		3	10	17	24	31

New Year's Day.....	New Year's Day
Washington's Birthday.....	February 22, Wednesday
May Day.....	May 1, Wednesday
Decoration Day.....	May 30, Thursday
Independence Day.....	July 4, Thursday
Labor Day.....	September 4, Monday
[Admission Day (California).....]	September 9, Saturday]
Christmas Day.....	December 25, Monday
Leap Day.....	Leap Day

The transition to this or a closely related system should be made at the beginning of the particular year which will not break the continuity of the week in order to have January 1st fall on Monday. In the Gregorian system January 1, 1923, falls on Monday. In the proposed new system that particular interval of twenty-four hours would be called New Year's Day (of 1923) and the following day would be Monday, January 1, 1923. The next opportunity to introduce the system would come in 1934.

I think it may safely be said that the accounting operations of the world will not be increased at any point, but on the contrary, will be simplified at many points thru the adoption of this calendar. Some readers will undoubtedly urge that the break in the continuity of the weeks at the end of each year will be an inconvenience, and there is some truth in this. For example: from Saturday to Saturday of successive weeks will be seven days, as at present, except that the first Saturday of January will be eight days from the last Saturday of December in common years, and nine days in leap years. However, the world would soon accustom itself to this fact, and certainly the difficulty would be not nearly so serious as that of carrying counts of days from one month to another in the present system. It has been suggested that church organizations may object to the proposed reform on the ground that from Sunday, December 31st, to Sunday, January 7th, will be more than seven days; but we should remember that the Bible says: "Six days shalt thou *labor*, etc.," and the proposed reform is in full harmony with that law, as the "seventh day" is always Sunday. New Year's Day, forming the extra day in the "long week," is a holiday when no man worketh, and Leap Day, also in the long week, one year in four, would undoubtedly be decreed a holiday.

Deslandres, of the Paris Academy, proposes that the extra (365th) day of each year shall be called, not New Year's Day, but "Peace Day," and be placed between June and July. This is objectionable, at least from the American point of view, because it would add another holiday to the already long list, for in that case January 1st would undoubtedly be a holiday also, as in the present system. There is the further objection that the break in the run of the weeks would occur in the middle of the year, and again, in leap year, at the end of the year.

Bigourdan, also of the Paris Academy, proposed a calendar which does not break the continuity of the weeks. It is an improvement

over the Gregorian calendar in that the year is divided into four (unequal) quarters of three months each, thirty-one days in the first month of each quarter, thirty days in the second month of each quarter, and thirty days in the third months of the first three quarters, but thirty-one days in December, with the extra day of leap year added to November, making that a month of thirty-one days every fourth year. In leap years four months in succession will have thirty-one days. Bigourdan's system has the advantage of making the months a little more equal than they are at present, and of simplifying slightly the run of the days thru the year, but the first day of the months, a given day of any month, and the holidays, fall on different days in successive years, as in the Gregorian calendar. His calendar is not perpetual and would have to be reconstructed and reprinted for every year.

No man and no single organization can foresee all the consequences which would result from changes in the calendar. Comments and criticisms are desirable. There are always people who will object to any change. The slight reforms introduced in the calendar by Pope Gregory met with violent opposition, yet Gregory was right, and the world is his debtor.

The proposal that the day should be divided into twenty-four hours numbered consecutively from one to twenty-four, instead of two series, as at present, numbered from one to twelve, could well be considered simultaneously. This reform has been in successful operation in Italy and in the railroad systems of other countries for many years. Its use in railroad time tables leaves the passenger in no doubt whatever as to whether the departure of trains occurs in the forenoon or the afternoon, and mistakes are similarly avoided in all departments of life.

The substitution of a rational series of names for the months could likewise be considered with advantage. The objections to the present system will be apparent to everyone who makes himself familiar with the origins of the names of the months. These origins are briefly as follows:

January, from Janus, a Roman god, protector of doors and gateways, patron of the beginning and ending of all undertakings.
 February, from Februarius, the Roman month of purification and expiation.
 March, from Martius, the Roman god of war.
 April, from Aprilis, regarded by the Romans as the month when the Earth opens to produce new fruits.
 May, from the Latin Maius, third month of the early Roman year, named from the Greek Maia, eldest of the Pleiades, one of the wives of Zeus.
 June, from the Roman month Junius, named in honor of the Junius family.
 July, from Julius Caesar.
 August, from Augustus Caesar.
 September, meaning seventh, but it is the ninth month.
 October, meaning eighth, but it is the tenth month.
 November, meaning ninth, but it is the eleventh month.
 December, meaning tenth, but it is the twelfth month.

The utilization of ancient deities, of quite ordinary mythological characters, of families, of Roman emperors, and of numerical designations wrongly applied is not the sign of poverty of sources, but of a lack of system.

It has been suggested by Flammarion and others that the twelve months could well bear names expressing the higher ideal qualities of the human race, or of conditions to which we attach importance, such as truth, justice, goodness, wisdom, beauty, courage, liberty, equality, fraternity, independence, peace, etc. It would also be possible to base the names of the months upon the Latin words for the numbers one to twelve. This numerical plan, however, would be obliged to avoid a system with which the present names September, October, November, December would be uniform, as it would not do to move the four names forward to their proper positions with the seventh, eighth, ninth, and tenth months, in view of the confusion which would unavoidably be introduced.

It is clearly the wisest policy to introduce at one and the same instant, or as nearly as practicable at the same instant, all those reforms in the fundamental time systems whose adoption within the next half century can be foreseen.

The greatest difficulty confronting calendar reform will probably be found in the conservatism of national governments: parliaments and congresses will doubtless hesitate to enact the necessary legislation. There is also much merit in the point of view that "reformers" should incline toward conservatism in all matters affecting the daily life of the people, under present unsettled world conditions.